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THE CHANGING ROLE OF FROZEN FOOD LOCKER COOPERATIVES

By William R. Seymour

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FARMER COOPERATIVE SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Farmer Cooperative Service
U.S. Department of Agriculture
Washington, D.C. 20250

Martin A. Abrahamsen
Acting Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives and others in the dissemination of information relating to cooperative principles and practices.

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SUMMARY AND CONSLUSIONS

This report records the results of a study by Farmer Cooperative Service on the role of frozen food locker cooperatives as processors and merchandisers of locally produced farm products.

Data from the operations of nine cooperatives in two different time periods (1954 and 1964) served as a basis for this analysis.

These nine cooperatives operated 14 frozen food locker and freezer provisioning plants. The associations were quite similar in their 1954 operations but by 1964 their operations showed a striking difference in changes in total operating revenue. When arrayed on the basis of changes in revenue, these nine associations fell into two groups - those with a relatively large increase (Group I) and those with relatively small increase (Group II) in total operating revenue.

The two groups were comparable in total number of processing plants, slaughter facilities, size of plant facilities, and custom services offered.

Briefly this study showed the following:

For the period 1954 to 1964, Group I increased average total operating revenue by 51 percent (from $43,700 to $65,900) compared with a 4 percent decline ($46,500 to $44,800) for Group II. The accompanying tabulation shows major changes in source of revenue.

Revenue items	Average change between 1954 and 1964 for: Group I	Group II
	Percent	
Total sales	89	44
Gross margins on sales	118	83
Rental and storage	(12)[1/]	(42)
Custom processing	97	2
Custom slaughtering and hides	49	(15)
Other revenue	(15)	(57)
Total operating revenue	51	(4)

1/ ( ) Denotes percentage decline.

Accompanying these changes in revenue, total operating expenses increased an average of 55 percent (from $38.100 to $59,000) for Group I and 5 percent (from $44,100 to $46,500) for Group II. The major changes in expense items are shown in the following tabulation:

Expense items	Average change between 1954 and 1964: Group I	Group II
	Percent	
Salary and wages	77	16
Processing supplies	53	(5) 1/
Other variable expenses	31	(7)
Fixed operating expenses	(7)	(7)
Total operating expenses	55	5

1/ ( ) Denotes percentage decline

Even though Group II was able to hold down costs so it showed only relatively small percent increase in expense, this coupled with a 4 percent loss in revenue was sufficient to create a $1,700 loss in net operating revenue during 1964--a 171 percent decline from 10 years earlier. Group I realized $6,900 net operating revenue in 1964 or a 23 percent increase over 1954.

The role performed by these two groups as processors and merchandisers of locally produced farm products also differed. The most significant difference between the two groups in 1964 were:

- Group I sold approximately 1.7 times more pounds of locally produced livestock than did Group II - 66,000 pounds compared to 39,500.
- Custom processing volume was 2.7 times greater for Group I than for Group II--712,400 pounds compared with 276,900.
- Group I slaughtered 126 percent more cattle and calves, and 239 percent more swine than Group II.
- As shown by the accompanying tabulation, specified custom service rates charged by Group I were substantially less than rates charged by Group II.

Custom service	Percentage less charged by Group I than Group II
Processing fresh meat	25
Annual locker rentals	9
Beef slaughtering (per head)	17
Swine slaughtering (per head)	71

While this study of nine cooperative frozen food locker and freezer provisioning associations cannot provide a basis for drawing conclusions applicable to all cooperatives in general; certain observations can be made that do have rather wide applications. They are:

- 0 Cooperatives that maintained a balanced growth in both custom services and sales activities appeared to have a greater potential for financial success than associations relying solely on one or the other.
- 0 Cooperatives that sold mainly locally produced animal products were able to realize a greater percent margin on their sales that associations handling primarily packer meats.
- 0 The very magnitude of labor expense indicated a possibility for improving net operating revenue through improving labor efficiency.
- 0 Raising custom processing rates to compensate for declining volume was not an effective method for generating additional custom service revenue.

The Changing Role of Frozen Food Locker Cooperatives

by William R. Seymour
Frozen Food Locker Branch
Purchasing Division

Frozen food locker and freezer provisioning cooperatives confront changing economic conditions. These changes are typified by increased use of home-freezers, migration from rural areas, fewer rural families producing food for home use, and the ease of shopping in large communities.

To meet these changes, many cooperatives have broadened the scope of their operations to include processing for sale. This new function encompasses processing and merchandising of locally produced farm products and packer products for the local retail and institutional market as well as for homefreezer owners.

The objectives of this report are to show:

1. How changes in operations during a 10-year period influenced the operating results of cooperatives.
2. The consequences of these changes upon cooperatives as processors and merchandisers of locally produced farm products.

To accomplish these objectives nine cooperatives, operating 14 frozen food locker and freezer provisioning plants were studied. These plants were selected because their services were typical of those offered by frozen food locker and freezer provisioning cooperatives. These associations also had varying degrees of financial success during the period 1954 to 1964. In all cases, the 1954 and 1964 operational represent normal operating years for all associations.

The method of analysis was to array these cooperatives according to rate of change in total operating revenue between 1954 and 1964. Average rate of change in operating revenue then was computed and used as a dividing point.

The five associations above average in change in total operating revenue went into Group I and the four below average, in Group II.

As used in this report, Group I represents the average of the five cooperatives making up that group and Group II represents the average of the four cooperatives making up that group. The balance of this report compares and contrasts these two groups.

Group II had substantially larger investment in fixed assets than Group I, in 1954. This was due to time of purchases rather than difference in kind.

Facilities and equipment were quite similar, in that each group had seven processing plants (with comparable gross refrigerated and processing space), three abattoirs, and like equipment.

The only change in operating capacity between 1954 and 1964 was the addition of patty machines and stuffers by both groups in equal amounts.

External factors of these groups were comparable in relation to competition, potential patronage, per capita income, and size of trading areas served in both 1954 and 1964.

Since these factors were relatively constant during the period of study, they were not analyzed further.

Results of this study are presented under four major sections:

Characteristics--This section describes the facilities and services these cooperatives offered their patrons.

1954 Operations--This section sets the stage by showing the similarities in operation between the two groups of associations in the base year.

1964 Operations and Changes from 1954--This section gives a detailed analysis of the 1964 operations and the changes that have taken place in 1954.

Implications--The effect of different modes of operation upon the association's financial structures and their roles as processors and merchandisers of locally produced farm products are examined in this section.

CHARACTERISTICS

To provide the services desired by their patrons, cooperatives invest in buildings and equipment. The amount of capital invested depends upon the number of services provided and the level of output of each service.

A study by Purdue University 1/ indicates that the average frozen food locker plant spends approximately 60 percent of its total investment on basic buildings and insulation. Refrigeration equipment and lockers each account for about 10 percent, and the remaining 20 percent of the invested dollar goes for a miscellaneous group of items such as:

1. Lobbies, office, and display equipment.
2. Equipping the processing area with cutting tables, power saws, wrapping equipment, meat grinders, slicer, small hand tools, and overhead tracks.
3. Accessory equipment such as: Smokehouses, pork curing equipment, scales, lard kettles, poultry picking equipment, and slaughtering facilities.

During the past decade, competition, changing consumer habits, and rising costs have encouraged frozen food locker cooperatives to make some major changes.

A major problem of these associations has been the loss of income from locker rentals. To offset this drop in income, they have employed new merchandising activities.

1/ Farris, William S. Trends in the Frozen Food Locker Industry and Utilization of Labor in Selected Indiana Locker Plants. Purdue University, January 1955.

Changing from primarily custom service organizations to multi-service operations, cooperatives are also able to process and sell locally produced farm products. The two groups of cooperatives that served as a basis for this appraisal portrayed the above mentioned characteristics.

1954 OPERATIONS

This section of the report sets the stage by showing the similarities in operation between the two groups of associations in the base year 1954 and 1964.

Facilities and Services

Services offered by the two groups of cooperatives in 1954 were: (1) Chilling, cutting, wrapping, freezing, and grinding (custom processing), (2) sausage making, (3) curing and smoking meats, (4) lard rendering, (5) freezing fruits and vegetables, (6) slaughtering, and (7) poultry dressing. All associations in both groups provided these services, Each group had three associations performing slaughtering and one association each engaged in poultry dressing in 1954.

In addition to services already described, many associations performed various merchandising and commercial activities, as shown in table 1.

Table 1 - Percentage of associations by groups engaged in selected merchandising and commercial activities, 1954

Activity	Group I	Group II
	Percent	
Sold packer meats	60	50
Sold locally slaughtered meats	40	25
Sold commercially frozen foods	0	75
Provided delivery service	20	75
Sold homefreezers	40	40
Sold dry goods	40	60
Bought livestock for slaughter and resale	60	0
Produced cured meat for sale	60	25
Produced pork sausage for sale	60	50

An analysis of these activities indicated that in 1954 a larger proportion of Group I associations bought, slaughtered, processed, and sold locally produced livestock than did Group II associations. Group II associations concentrated on selling products packed by other firms.

Rates Charged For Custom Services

Rates charged for the three major custom services--locker rentals, meat processing, and curing and smoking--are shown in the next tabulation:

Custom services	Rates charged by Group I	Rates charged by Group II
Annual locker rental	$12.80	$13.65
Custom meat processing per 100 lbs.	3.80	4.15
Curing and smoking per 100 lbs.	6.00	6.50

Rates charged by Group I average 7 percent less for annual locker rentals, and 9 percent less for both custom processing, and curing and smoking than those charged by Group II. The rate schedules for slaughtering were not available.

Size of Operations

A reasonable measure of business size is dollars of revenue generated by an organization--its total operating revenue. And how successfully an organization is being operated is measured by the amount of revenue remaining after expenses are paid--net operating revenue.

For purposes of this study, total operating revenue consisted only of revenue from the sale of goods and services and total operating expenses, only those expenditures directly related to these sales. Miscellaneous income and expenses not attributable to ordinary operations, such as interest on invested capital, revenue from sale of assets, and interest expenses, were not included.

To better examine the operating results of the selected cooperatives, individual operating statements were grouped and consolidated and then an average statement was computed for each group for 1954 and 1964. (table 2).

Table 2 - Cooperative operating statements, by group 1/, 1954 and 1964

Item	1954		1964	
	Group I	Group II	Group I	Group II
Revenue				
Total sales	$27,000	$52,900	$51,000	$76,200
Cost of goods sold	21,900	44,600	39,900	61,000
Gross margins on sales	5,100	8,300	11,100	15,200
Locker rental and storage	12,100	13,100	10,600	7,600
Custom processing	17,300	16,300	34,000	16,600
Slaughtering and hides	3,700	3,900	5,500	3,300
Other operating revenue	5,500	4,900	4,700	2,100
Total operating revenue	43,700	46,500	65,900	44,800
Expense				
Salary and wages	22,200	23,400	39,400	27,200
Processing supplies	4,000	3,800	6,100	3,600
Other variable expenses	6,400	10,800	8,400	10,000
Fixed operating expenses	5,500	6,100	5,100	5,700
Total operating expenses	38,100	44,100	59,000	46,500
Net operating revenue	5,600	2,400	6,900	(1,700) 2/

1/ Represents the average of firms within respective groups.
2/ ( ) Denotes loss.

Although Group II produced 6 percent more total operating revenue in 1954 than did Group I, its net operating revenue was less than half that of Group I. Operating expenses were part of the problem in that Group II's were 16 percent higher than those of Group I.

The sources of operating revenue and expense are further examined in the following paragraphs to point out similarities and differences between Group I and II.

Operating Revenue

Gross margins on sales are the amount of revenue remaining after deducting cost of goods sold. In 1954, revenue from this source accounted for 12 percent of total income for Group I and 17 percent for Group II.

For both groups, meats processed in plants accounted for 85 percent of gross margins while frozen food packed by other plants, packaging materials, dry goods, and homefreezers accounted for the remaining 15 percent.

Revenue from gross margins on sales of meat were generated by two sources--handling charges and slaughtering and processing charges. Handling charges accounted for approximately 60 percent of this revenue, and charges for processing and slaughtering, the remaining 40 percent.

In 1954, Group I processed an average of 53,100 pounds of all meat for sale compared to 90,900 pounds for Group II. Outlets for these sales of plant processed meats are shown in the following tabulation:

Outlets	Group I	Group II
	Percent	
Locker and freezer patrons	78	49
Retail cuts through meat counters	9	31
Institutions	13	20

Custom processing provided the major source of total operating revenue for both groups - 40 percent for Group I and 35 percent for Group II. Revenue from this source depended on the rates charged for processing and the pounds of meat processed. Thus in 1954 Group I realized $17,300 from processing 433,100 pounds of meat and Group II, $16,300 from 410,500 pounds.

Sufficient information was lacking to do an analysis on the volume of custom slaughtering for 1954. Income from slaughtering and hides accounted for 8 percent of total operating revenue in both groups during 1954.

In 1954 Group I rented an average of 835 lockers or 97 percent of plant capacity. During the same period Group II rented 900 lockers or 79 percent of plant capacity. Revenue gained from locker rentals and commercial bulk storage amounted to 28 percent of the total operating revenue for each group.

Revenue from other sources such as poultry dressing, lard rendering, curing and smoking, bones, and scrap sales accounted for 12 percent of total operating revenue for Group I and 11 percent for Group II.

Operating Expenses

Operating expenses are those costs associated with the sale of goods and services. Non operating expenses were not considered in this analysis. Gross operating expenses were divided into salary and wages (both processing and managerial), processing supplies, other variable expenses, and fixed expenses (table 2).

Salaries and wages constituted the major expense item. In 1954, this expense equalled 50 percent of total operating revenue for both groups.

Each dollar Group I spent for labor produced $1.95 of operating revenue while each dollar Group II spent for labor produced $2.00. These figures indicate the relative labor productivity of both processing and administrative employees in terms of their ability to generate operating revenue.

Expenses for processing supplies in 1954 accounted for 9 percent of operating revenue for Group I and 8 percent for Group II. Group I spent relatively less for other variable expense items than did Group II--15 percent for Group I compared to 23 for Group II. These expenses were such items as: Bank service charges, bad debts, dues and subscriptions, and meeting expenses. And, both groups spent 13 percent of their operating revenue for fixed operating expenses.

Net Operating Revenue

During 1954, net operating revenue amounted to 13 percent of gross operating revenue for Group I and 5 percent for Group II. This difference was due to the fact that Group I was able to control other variable expenses better than Group II.

1964 OPERATIONS AND CHANGES SINCE 1954

Although the two groups of cooperatives were quite similar in 1954, marked differences developed by 1964. This section discusses the characteristics existing in 1964 and changes that had taken place since 1954.

Facilities and Services

Many cooperatives were offering essentially the same services in 1964 as they did 10 years earlier but some changes had taken place.

In 1964, two of the associations in Group I and one association in Group II were financing bulk food purchases for 60 days or more. Ten years earlier none offered this service.

The number of associations selling locally slaughtered meat doubled in each group - from two associations in 1954 to four in 1964 for Group I and from one to two for Group II. The number of associations selling packer slaughtered meats also increased by one for each group. These comparisions show that for both groups more associations were engaged in meat merchandising activities in 1964 than in 1954.

All associations in Group I that included dry groceries in their freezer provisioning operations in 1954 had discontinued this practice by 1964 while the number of associations selling homefreezers dropped 50 percent in both groups between 1954 to 1964.

The number of associations buying livestock for slaughter and resale, producing cured meats for sale, producing sausage for sale, and producing portion meats increased by one association for Group II. The only change in Group I was an increase of two associations producing pork sausage for sale.

Rates Charged for Custom Services

Rates charged for various custom services increased for both groups between 1954 and 1964. The 1964 rates are shown in the following tabulation:

Custom service	Rates charged by Group I	Rates charged by Group II
Annual locker rental	$13.70	$15.00
Custom meat processing per 100 lbs.	5.00	6.25
Curing and smoking per 100 lbs.	6.00	6.50

In 1964 the rates charged by Group I were 9 percent lower for annual locker rentals, 25 percent lower for custom processing of meat, and 8 percent less for custom curing and smoking than for Group II.

Size of Operations

During 1964 Group I produced an average of $65,900 in total operating revenue--51 percent increase over 10 years earlier. During the same period Group II generated only $44,800 in operating revenue--4 percent less than the 1954 operations. Average operating expenses increased 55 percent (from $38,100 to $59,000) for Group I and 5 percent (from $44,100 to $46,500) for Group II.

These changes in revenue and expenses resulted in an increase in net operating revenue of 23 percent (from $5,600 to $6,900) for Group I and a 171 percent decline (from $2,400 to a loss of $1,700) for Group II for the 1964 operations compared with 1954. A discussion of the factors associated with these changes follows.

Operationg Revenue

From 1954 to 1964, revenue from gross margins on sales increased 118 percent for Group I and 83 percent for Group II (table 3). These increases were greatly influenced by two conditions: An increase in total sales--89 percent for Group I and 44 percent for Group II; and an increase in the gross margins percentage--from 19 to 22 percent for Group I and 16 to 20 percent for Group II (table 2).

In 1964, as was the case 10 years earlier, meat processed in plant was the primary source of total sales--$46,400 for Group I and $61,000 for Group II. Poundage of meat processed for sale also increased--87 percent for Group I and 31 percent for Group II, or to 99,300 and 119,100 pounds respectively.

Group I acquired approximately two-thirds (66,000 pounds) of this meat from locally produced livestock compared to one-third (39,500 pounds) for Group II. Between 1954 to 1964, the outlets for meat sales did not change for Group I while Group II showed an 18 percentage point increase in bulk sales to freezer patrons, and an equivalent decline in sales over a meat counter and to institutions (7 and 11 percentage points, respectively).

Table 3 - Change in operating revenue by groups, 1954 compared to 1964

Revenue items	Average change between 1954 and 1964 Group I	Group II
	Percent	
Total sales	89	44
Cost of sales	82	37
Gross margin on sales	118	83
Locker rental and storage	(12) 1/	(42)
Custom processing	97	2
Slaughtering and hides	49	(15)
Other operating revenue	(15)	(57)
Total operating revenue	51	(4)

1/ ( ) Denotes percent decline

The importance of the increase in revenue from gross margins on sales is reflected in the relation of gross margins to total operating revenue. For Group I, revenue from gross margins increased from 12 percent of total operation revenue in 1954 to 17 percent in 1964. For Group II, revenue from gross margins jumped from 18 percent to 34 percent of total operating revenue (table 2).

In 1964, custom processing provided the largest single source of revenue for both groups--52 percent of total operating revenue for Group I and 37 percent for Group II. From 1954 to 1964, this source of revenue increased 97 percent for Group I while for Group II it remained at approximately its 1954 level (table 2).

Group I processed an average of 712,000 pounds of meat (64 percent increase over 1954) and Group II processed 267,900 pounds (a drop of 35 percent.) The number of associations doing custom slaughtering did not change during the period of this study. Revenue from custom slaughtering and hides increased 49 percent for Group I while for Group II it decreased 15 percent. This source of revenue as a percentage of total operating revenue did not materially change between 1954 and 1964.

Volume of livestock slaughtered and rates charged were not available for 1954. The 1964 data on slaughtering and rates charged are preseneted in following tabulation:

Group	Cattle and calves		Swine	
	Custom slaughtered	Rates charged per head	Custom slaughtered	Rates charged per head
I	880	$5.00	1,720	$2.40
II	390	5.85	510	4.10

Locker rentals and storage revenue declined between 1954 and 1964 for both groups. In 1954, Group II realized $1,000 more revenue from this source than did Group I. Ten years later Group I had surpassed Group II by $3,000--$10,600 revenue for Group I compared to $7,600 for Group II (table 2).

Number of lockers rented also declined. During 1964, Group I rented an average of 715 lockers and Group II 570 (a 14 percent and 37 percent decline, respectively, from 10 years earlier). Both groups removed lockers between 1954 and 1964.

Other revenue decreased sharply from 1954 - 15 percent for Group I and 57 percent for Group II.

Operating Expenses

In 1964, total operating expenses amounted to 90 percent of total operating revenue for Group I and 104 percent for Group II. This reflected an increase of 3 percentage points for Group I and 9 points for Group II.

This increase in expenses was brought about mainly by the increase in labor costs. During this 10-year period, the total labor bill increased 77 percent for Group I and 16 percent for Group II (table 4). This increase accounted for 82 percent of the increase in total operating expenses for Group I and all of the increase for Group II.

Expenses for processing supplies as a proportion of total operating revenue were identical for both 1954 and 1964 (9 percent of total operating revenue for Group I and 8 percent for Group II).

Table 4 - Change in operating expenses by groups, 1954 compared to 1964

Expense items	Amount of change	
	Group I	Group II
	Percent	
Salary and labor	77	16
Processing supplies	53	(5) 1/
Other variable expenses	31	(7)
Fixed operating expenses	(7)	(7)
Total operating expenses	55	5

1/ ( ) Denotes percent decline.

Fixed operating expenses claimed 8 percent of total operating revenue in Group I and 13 percent in Group II in 1964. This was down 5 percentage points for Group I and showed no change for Group II over 1954.

Other variable expenses as a percentage of total operating revenue declined slightly in both groups in 1964 compared with 1954. In 1964, Group I spent 13 percent of its total operating revenue on other variable expenses while Group II spent 22 percent.

Net Operating Revenue

In 1964, Group I realized $6,900 net operating revenue compared to a loss of $1,700 for Group II. The main reason for the loss position of Group II was its inability to generate enough revenue to compensate for the rise in salary and wages.

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IMPLICATIONS

Change in net operating revenue between 1954 and 1964 indicated that as a group management of Group I was more effective than management of Group II in these areas: (1) Custom services and processing for sale, (2) facilities and equipment, (3) processing locally produced products and (4) internal efficiency.

Custom Services and Processing For Sale

Both groups of cooperatives relied heavily upon custom services as a source of operating revenue in 1954. Revenue from products processed for sale contributed little to total operating revenue in that year.

By 1964, revenue from products processed for sale played a greater role. Group I increased net operating revenue by promoting both processing for sale and custom services. Group II promoted processing for sale but not custom services, apparently. The increase in revenue from products processed for sale, by Group II however, was insufficient to offset the losses in revenue from custom services.

It was not that Group I offered any additional services that made it relatively more successful than Group II between 1954 and 1964. But, rather it was the ability of Group I to stimulate growth in both custom services and processing for sale simultaneously.

Both groups had losses in locker rentals. It is important however, that Group II losses from this source were over twice those of Group I. This illustrates the fact that balanced promotion between custom services and processing for sale needs to be maintained for effective growth.

Facilities and Equipment

In 1964, Group I custom processed 2.7 times as many pounds of meat, and slaughtered nearly 2.3 times as many cattle and calves and 3.4 times as many swine as Group II. Group I processed these much larger volumes through plants and equipment that were substantially equivalent to those of Group II. As such, Group I attained greater efficiency and lower unit costs than Group II.

Processing Local Products

In the area of processing for sale, Group I concentrated on buying, slaughtering, processing, and selling locally produced livestock. Group II concentrated on processing and selling meat bought from firms outside the local trading area.

Performing these functions provided Group I certain economic benefits. These benefits came to the cooperative in the form of savings in market costs the packer would have had to pay. The local cooperative processing locally produced livestock benefits from savings in transportation costs, handling costs, and efficiencies of internal operations of the locker plant.

Thus savings from the sale of locally produced livestock resulted in Group I realizing a higher percent gross margin on sales than those realized by Group II.

Internal Efficiency

Internal efficiency was somewhat higher for Group I than for Group II. This was mainly explained by the larger volume of products processed in Group I than that processed by Group II. By processing a relatively larger volume of products, while controlling variable costs, Group I was able to obtain a relatively low cost for each pound of product processed. This in turn helped Group I earn a reasonable net operating revenue without charging as high processing rates as Group II.

In addition to the need for volume, it is also essential that labor be efficiently used. Both groups of cooperatives had a decline in labor productivity as measured in terms of total operating revenue produced per dollar of labor expense (from about $2.00 in 1954 to about $1.65 in 1964).

For Group I, this lower labor efficiency resulted from a proportionately greater rise for total labor cost than for total income. For Group II lower labor efficiency resulted from a combination of higher labor cost and lower income.